MARCH 1963

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All subscribers on the rolls when the next issue comes off the press, however, will get their full number of issues at no increase in price. This means that by subscribing today — or by renewing your subscription before April 1 — you will receive the double-sized Vicom until April 1, 1964, for just $4. (If you renew a subscription which is not yet nearing expiration, you will receive it even longer! During this month, we'll accept two- and three-year extensions as well.)

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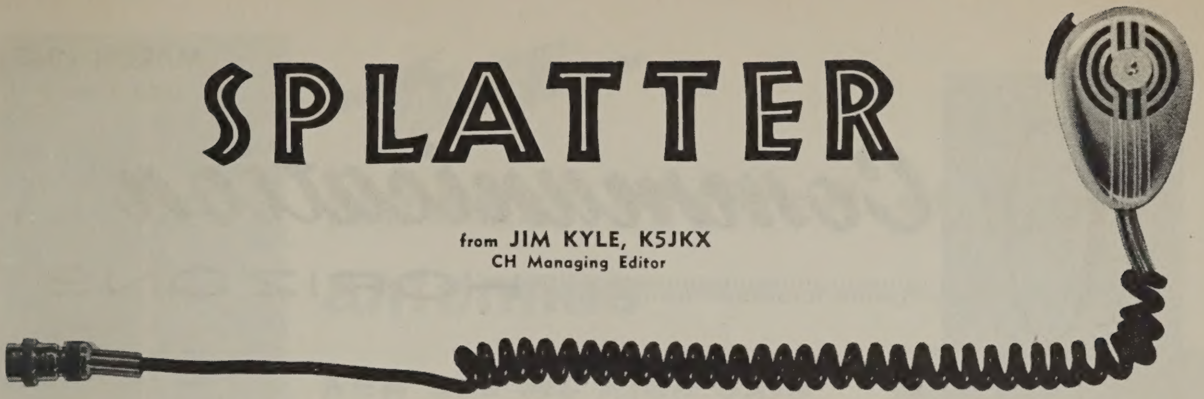
SPLATTER



from **JIM KYLE, K5JKX**
CH Managing Editor

This is the last of the "Splatter" columns.

You want to know why? You'll find out next month, when you receive your April issue.

Because the April issue won't be the familiar 20-page, 7-by-10-inch Communication Horizons.

Instead, it will be a more-than-twice-as-large 40-page, 8½-by-11-inch magazine, with a new name too. "Video Communication Journal" is the official title; we call it Vicom for short.

Along with the increase in size will come, naturally, a few changes inside. All the familiar features of CH (except Splatter) will be there, though. With more room, there will be *more* of everything aimed at communications people.

There'll also be, as the new name indicates, quite an emphasis on video. In the public-safety field, CCTV is a coming thing—and Vicom will cover it. In all areas of communication, microwave is becoming important—and Vicom will be there.

Physically, we're merging two of our magazines to form Vicom: along with CH, Television Horizons will be included. But it's *not* a sharing of the communication journal with the TV people—far from it. Many of the technical interests of the two fields overlap, such as the two instances I cited in that last paragraph. Merging the two magazines lets us put more time and detail into comprehensive coverage of these "overlap" fields for everybody!

Effective in April, there are some staff changes too. Russ Miller, associate editor of CH and managing editor of TVH, will be managing editor of Vicom. I will step back to the slot of "Communication Editor" when Vicom appears—but it's no demotion! I will still select and arrange the communication-industry coverage for the book—and being freed from the administrative details connected with a managing editorship will allow me more time to get you the best in usable information. A sample of what I have in store is the "Choosing and Using Antennas" item on page 4 of this issue.

Along with all this, we have finally set up our long-planned "Horizons Research & Development Laboratory" and I have moved my office to the lab. The time gained from relinquishing the administrative job on CH will be devoted to lab work—and a brand new feature to appear in every issue of Vicom will be the "Lab Report." This may be a test of some recently-announced item of equipment—or it may be a technical discussion of some fine point in the art (science?) of communication.

Speaking of microwave, we have quite a few plans in store out here at the lab. One is a microwave link to the main office 3 miles away—with eventual video hookups both ways. Tests run in connection with this experimental installation will be reported in detail in the pages of Vicom.

You may find a few of our regular features absent this month. The rash of late-breaking news, together with a temporary advance in production schedules to accommodate the merger, may push some of the usually-last-minute material right out the door. But they'll be back, next month, in the new and bigger professional communications magazine - Vicom! See you then!

—JK

MARCH 1963
Vol. 3, No. 3

Communication HORIZONS

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Contributing Editors	Robert E. Brooking Jeremiah Courtney
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OUR COVER

Fire Warden Art Gallimore communicates by radio from heavy-duty tractor — a major factor in Everglades fire-fighting work. Weather-proof box containing radio communication equipment is attached permanently to the fender. Jarring does not bother the radio unit. Communication equipment may be transferred easily from the box on the tractor to other vehicles. See page 8 for the system story.

ADVERTISING

Communication Horizons Magazine accepts commercial display advertising from bona fide manufacturers and distributors of communications equipment and associated apparatus. Advertising rate card and coverage data available upon request. Call collect, Area Code 405, CEntral 2-1108 for advertising information.

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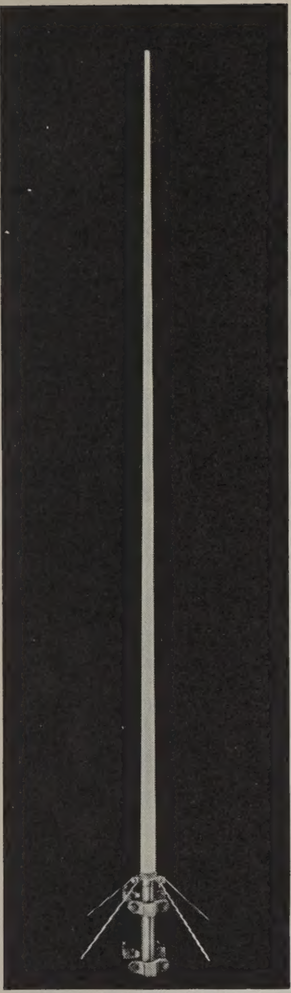

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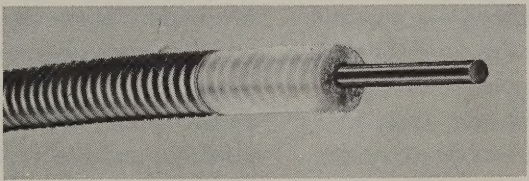

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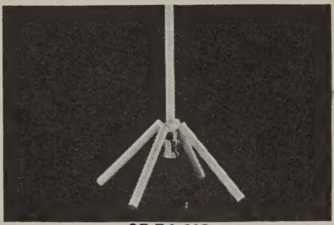
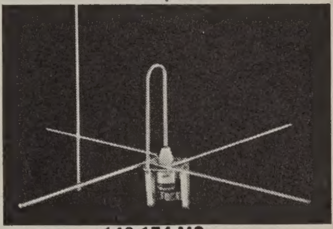
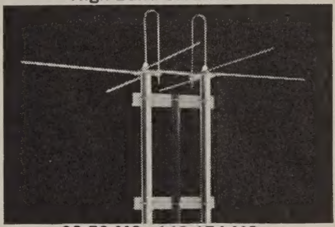


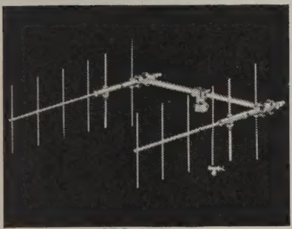
25-74 MC
Helipole



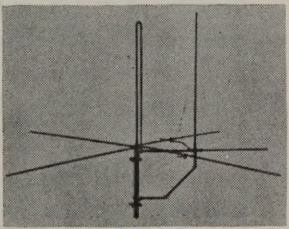
148-174 MC
High Band Cardioid



30-50 MC—148-174 MC
Bidirectional Unipoles



450-470 MC
Yagi Antennas



30-54 MC
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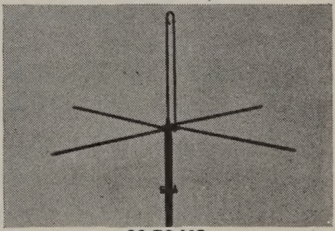

30-76 MC
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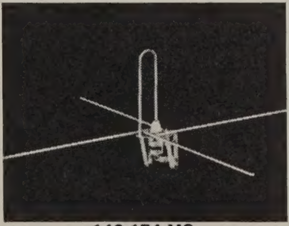

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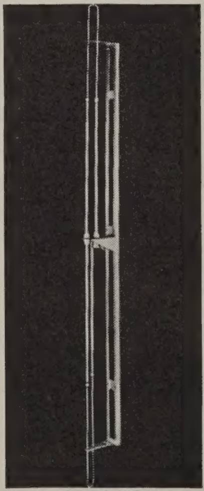
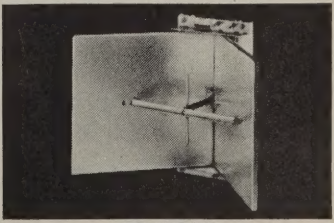
High Band Unipole



25-54 MC
Side Mounted Arrays



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Choosing and Using

Antennas

Frequently, in the planning or installation of a new system, there's a need for unusual antenna patterns.

Granted, the stock antennas with their omnidirectional patterns are the mainstay of the communication industry — but even so, many installations require a little more power in one or two directions than in all the rest.

A convenient example of this is the Oklahoma State Highway Department system described in our January issue; here, the requirement was to blanket the entire state. Omni antennas did most of the job, but a couple of spots required off-breed patterns to fill in the holes properly.

In this system, the requirement was met *without* going to special antennas — and the same trick will work most of the time for you.

A completely separate problem, of course, is the point-to-point communication link, such as say a remote control for a mobile relay station. Here, special directional antennas are a more practical solution.

Closely allied to the questions of antenna pattern is the matter of gain. With the rapid increase of popularity of high-band operation and UHF, the gain-type antenna has sprung to prominence. In addition, all types of directional antennas (whether standard antennas in special mounting or special antennas mounted conventionally) have some gain.

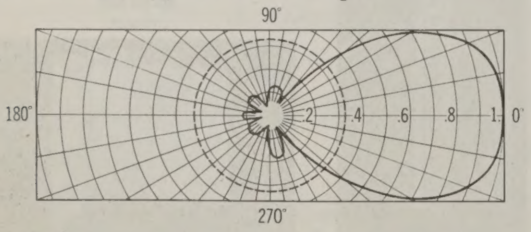


FIGURE 1 (above). Polar plot of radiation pattern from 10-element 450-Mc yagi directional antenna. Note spotlight effect.

FIGURE 2 (at right). Polar plot of omnidirectional gain antenna for either 150-Mc or 450-Mc band. This pattern applies only when antenna is mounted on top of tower; side mounting changes pattern as shown on opposite page.

Let's take a more detailed look at this business of choosing and using antennas.

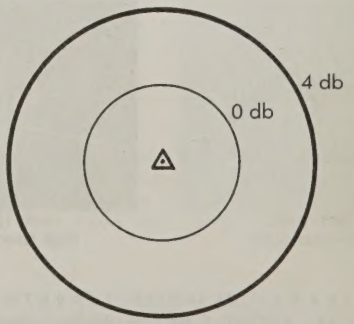
The "standard" communications antenna, of course, is the simple vertical. On a mobile, it's a quarter-wave whip. On a base station, it's a ground plane. Both of them are so common that no additional description is necessary.

The most common type of directional antenna back in the days when almost all operation was low-band — and still a popular antenna for point-to-point service as mentioned earlier — is the Yagi. This is a multi-element parasitic beam antenna, closely related to fringe-area TV antennas in design.

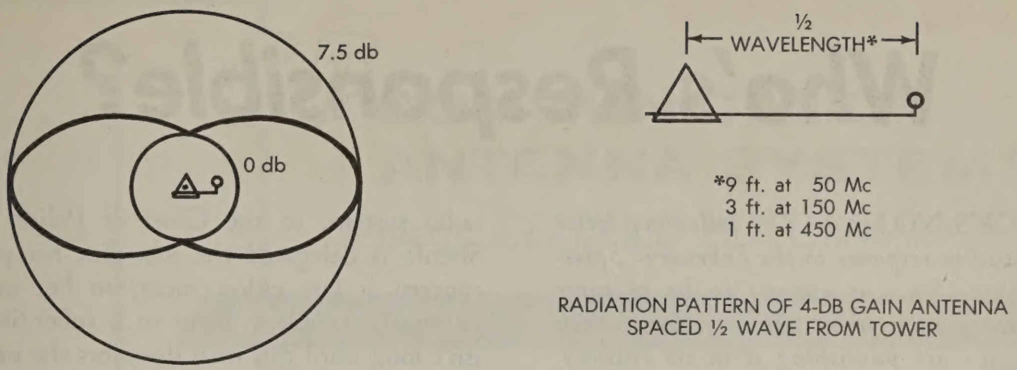
Roughly, the more elements on the Yagi, the greater the gain and the narrower the beamwidth of the beam. The minimum number of elements, of course, is two. A 2-element Yagi will give you approximately 5 db gain in the favored direction, and a radiation pattern that is roughly heart-shaped.

More common is the 3-element array, which provides 8 to 10 db of gain in the favored direction. The beamwidth is narrower but still may be as much as 60 degrees easily.

In the 450-Mc band, more elements become practical. A typical UHF Yagi can have 10 elements, providing 10 db of forward gain over a wide enough band of frequencies to accommodate both sides of a duplex system, and a radiation pattern only 30 degrees wide. The



RADIATION PATTERN OF 4-DB GAIN ANTENNA
MOUNTED ATOP TOWER



RADIATION PATTERN OF 4-DB GAIN ANTENNA
SPACED ½ WAVE FROM TOWER

FIGURE 3. Pattern of same antennas as Figure 2 except spaced one-half wavelength out from side of tower.

pattern of one such antenna (the Communication Products 288-509 model) is shown in Figure 1.

As you can see from this pattern, the Yagi antenna is nice for point-to-point operation but leaves much to be desired as a base-station unit when the idea is to communicate with the mobiles regardless of direction.

To do this effectively, we must retain the omni-directional characteristics of the familiar ground-plane antenna. However, gain is still possible.

Two or more vertical antennas may be stacked one above the other to provide 3 db gain in *all* directions (if 2 antennas are used; using 4 antennas and proper stacking distance allows up to 6 db gain). This is the principle behind virtually all of the widely-publicized gain antennas for our use.

These gain antennas perform indistinguishably from ground planes so far as directional effects are concerned; it's just like having a higher-powered station. Typical radiation pattern for a 4-db gain 150-Mc antenna is shown in Figure 2.

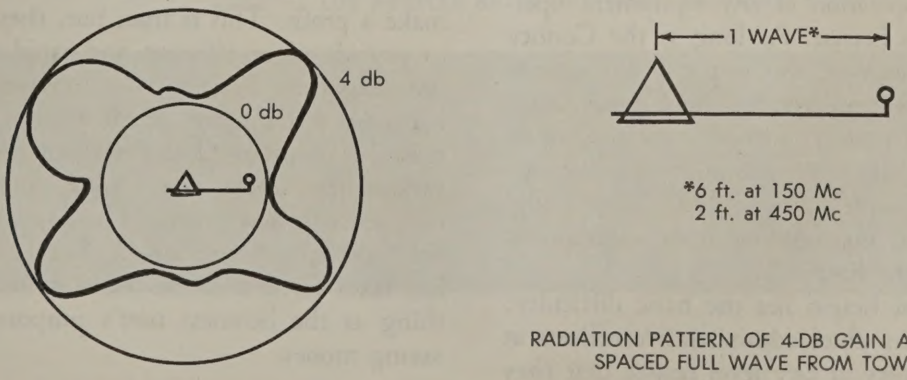
But what about those times when you don't want a perfect-circle pattern? A typical example might be a turnpike-based road service outfit, which needs to communicate with its mobile units either way down the pike but no need at all to have *any* power going off away from the pike.

You can still do this with the identical antenna whose pattern is pictured in Figure 2, simply by side-mounting the antenna on the tower. Spacing between the antenna and the tower determines the pattern you'll get.

For our turnpike base station, we would like to have a pattern like that shown in Figure 3. Spacing the antenna half a wavelength (3 feet at 150 Mc; 1 foot on the UHF band) out from the side of the tower and far enough below the top so that the tower is higher than the upper tip of the antenna, will give you this result.

A taxi company operating from a downtown location in a city where most of the buildings follow a sort of "X" pattern might be interested in the pattern of Figure 4. This is still the same antenna which produced the perfect circle of Figure 2; now, it's a full wave (6 feet on high-band, 2 feet on UHF) out from the side of the tower.

(Turn to page 20)



RADIATION PATTERN OF 4-DB GAIN ANTENNA
SPACED FULL WAVE FROM TOWER

FIGURE 4. Another side-mounting pattern of same antenna but now spaced a full wavelength from the tower.

Who's Responsible?

EDITOR'S NOTE — *The following letter was received in response to the February "Splatter" column. Since it appears to be of more than passing interest to the communications industry, we are publishing it in its entirety. As ever in this situation, we emphasize that the opinions expressed are solely those of the writer and do not necessarily reflect the viewpoint of CH, its editor, or its publisher — but we do invite comment and additional replies. Any that make important points will be published in future issues.*

Dear Jim:

The letter from Ted Merrill which you published in your column for February centainly raises some very cogent points. It is certainly time that those of us who have the duties of providing two-way radio systems, public safety *and* non-public safety, began to realize that time and spectrum space are both running out. But let us assume that we are aware of the serious situation that we face; what then? Mr. Merrill states: "Any half-baked investigation at all will show that at the present time the bulk of mobile radio licensees couldn't care less who holds the license."

Back in the Fall of 1961, the Sheriff of Sacramento County, California, wrote to the FCC inquiring as to methods of licensing radio systems for rural fire districts in the county. He explained that he was responsible for the fire radio licenses. In reply the FCC stated that the County "as licensee is responsible for the control and operation of any equipment operated under its license. As long as the County remains the licensee, this responsibility cannot be assigned or transferred. The County may, of course, delegate its authority for the supervision of its radio system to an internal agency such as the Sheriff's office," but "In so doing, the County is not relieved from its responsibility under the license."

I think that herein lies the basic difficulty; yet, how many chief administrative officers at the state, county or city level realize that *they* have the responsibility! After all, it's a police radio system, so the Chief of Police or the Sheriff is delegated the job. But his primary concern is law enforcement, so he, in turn, passes the problem along to a subordinate. It isn't long until this man discovers the necessity for joining APCO to find out what the other users are doing.

But APCO has recognized the need for a broader representation. That's why the name was changed from "Police" to "Public Safety". That is also why President Marshall invited representatives of other public safety groups to join with APCO in creating the forum known as PSCC.

However, this is only part of the problem and Mr. Merrill hit the nail squarely on the head in proposing a National Users Association. Again quoting him: "The idea died quickly because no one seemed to think that the licensees would be willing to pay for such a thing." He is so right! Again, APCO added a new class of membership known as Governmental Representation. This was done for two reasons: first, to reach the administrative level with our problems and second, to raise money for legal fees and other expenses connected with *protecting the licensees in the Public Safety Radio Services.* This is proper. It is not the individual communications administrator, technician or operator who is being served; it is the licensee; the city of ...., the county of ...., the state of.........

The governmental entity may take the attitude that its radio licenses are not used to make a profit. This is true, but, they are used to provide more efficient and rapid service to the taxpayers. Not only is the use of radio necessary to the safety of life and property but it is also necessary to the efficient operation of various departments, *i.e.*, police, fire, highway maintenance and others. The taxpayer is not only receiving better service, but he is paying less taxes for it and this amounts to the same thing as the business user's purpose, that is: saving money.

(Turn to page 20)

C·P COMMUNICATION ANTENNA SYSTEMS

—mean CERTIFIED PERFORMANCE!

BASE STATION STATIONMASTER ADVANCED DESIGN ANTENNA (4X Omnidirectional Gain)
U.S. PATENT NO. 3,031,658

Cat. No. 200-509 Frequency Range 130-174 MC*

Cat. No. 200-509 Stationmaster Collinear Gain Antenna is designed to meet the ever increasing need for high antenna gain in minimum space and at lowest cost. This antenna, consisting of a number of collinear radiating elements fed inphase and encapsulated in a continuous weatherproof fiberglass housing, meets the above requirements. Low overall weight eliminates the need for extensive erection equipment required by previous antennas offering equal power gain. The input fitting on these antennas is a standard Type N male connector mounted at the end of an 18" flexible terminal extension. Designed for maximum strength with minimum cross-section, Cat. No. 200-509 is capable of withstanding winds in excess of 100 MPH.

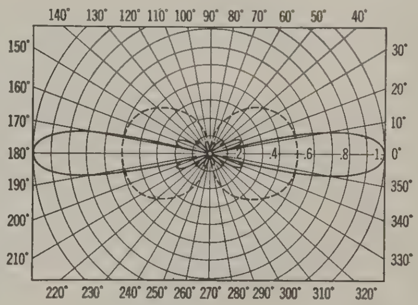
*Exact frequency must be specified

Electrical Specifications:

Nominal input impedance	50 ohms
VSWR	1.5:1
Bandwidth	±0.3%
Maximum power input	500 watts
Internal feedline	RG-8A/U
Flexible terminal extension	18" of RG-8A/U
Termination	Type N male with Neoprene housing
Omnidirectional gain	144-174 Mc 5.8 db 130-144 Mc 5.5 db
Vertical beam width (½ power points)	18°
Lightning protection	Direct ground

Mechanical Specifications:

Radiating element material	Copper
Element housing material	Fiberglass
Element housing tip diameter	⅝"
Element housing butt diameter	1⅞"
Element housing length	19'
Ground plane element length	18"
Support pipe	2⅜" dia. hot-galvanized steel, 22" available for mounting
Rated wind velocity	100 MPH
Lateral thrust at rated wind	45 lbs.
Bending moment 6" below ground plane at rated wind	450 ft. lbs.
Weight	30 lbs.



Vertical field strength pattern of Cat. No. 200-509 Stationmaster Antenna. A dipole pattern is shown for reference.

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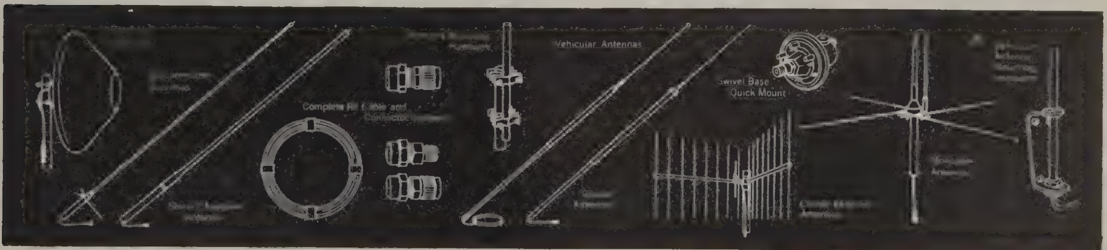


Radio Helps in the Everglades

'Gator Holes and

During hot seasons, when the water table in the Everglades is low, decaying vegetation becomes powdery dry. it ignites quickly and smolders stubbornly, burning undetected until flames become widespread. This creates a fire control problem unlike any other job of fire-fighting in the nation.

In this particular section of southern Florida, cultivated land is almost unobtainable and fires of this kind represent a substantial loss. If allowed to burn, the blaze will consume the peat-like composition down to the underlying rock. The rich black muck which normally results from the decay is ruined. Little soil is left to produce truck crops which serve the winter markets of northern communities.

The State of Florida recognized the situation when it established the Everglades Fire Control District in 1935. The district operated with limited equipment for several years and nstalled its first two-way radio in 1942, tied in with the Florida Highway Patrol. Today, a completely revamped communications program is helping the fire-fighters to heighten their efficiency and to gain increased headway over the problem.

A little more than two years ago, commissioners of the Everglades Fire Control District, the group which sets the policies and approves the expenditures of the agency, embarked on a program to extend two-way radio to all vehicles and to set up a series of base stations.

General Electric, by its low bid, was awarded the preliminary contract. The following year, the commission began to standardize with its G-E Progress Line equipment and again accepted G.E.'s low bid.

From a 330-watt G-E radio transmitter at Belle Glade — the highest power available — the headquarters office keeps in touch with a 100-watt base station at Davie, in Broward County to the south, and a 60-watt base station in Opalocka, in Dade County, still farther south. It also maintains contact with 60-watt mobile units in Martin, Glades, Highlands, and Hendry Counties, in a rough ring around Lake Okeechobee and surrounding marshlands.

The fire control district now has its own frequency, shared by the Central and South Florida Flood Control District, with headquarters in Belle Glade. There is little or no conflict because the flood control agency is busiest when the water table is high, and the fire control district is busiest when the water table is low. The U. S. Army Corps of Engineers also is authorized to use the frequency for emergency purposes. Communication with the Highway Patrol is still maintained.

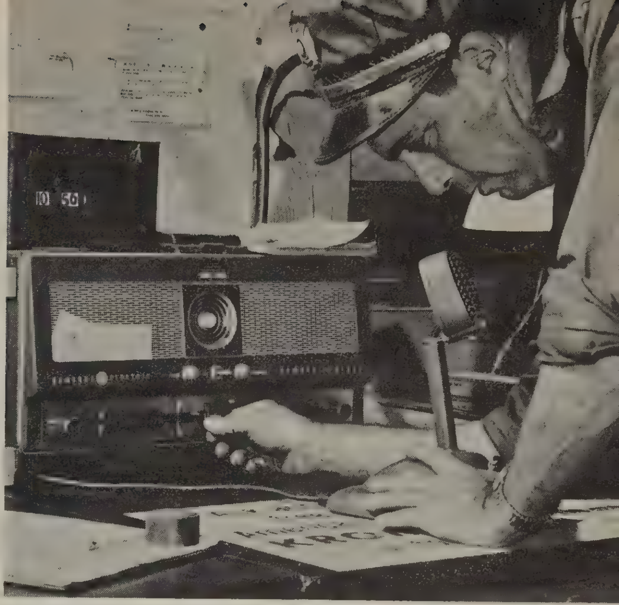
According to Chief Guy J. Bender, head of the department for 27 years, perhaps the most significant advantage from the extended two-way radio system is the additional power gained for the "big guns" of the fire-fighting force. These are tractors, normally assigned to Belle Glade, Davie and Opalocka. Their broad treads enable them to get off the highways, into the marshlands and, in most cases, to the scene of the most inaccessible fires.

Radio has given the five tractor units of the department a communication guarantee that permits them safely to range farther and longer when they are on a round-the-clock battle with a blaze. It gives the men and machines increased mobility.

All other vehicular units of the fire control district are now radio-equipped, too, for quick and continuous support. Whenever a serious fire breaks out in the 11-county district, 34 vehicles are ready to roll.

Each tractor pulls a pneumatically-powered disc or plow attachment. With these blades, the tractors build fire guards by turning over the soil in advance of the blaze. This cultivation, much as a farmer would do it, goes down until moist soil is brought up to the surface. In lieu of water, this is the most effective means the fire control agency has found of halting the

Glow



Headquarters communication center of Everglades Fire Control District, Belle Glade, Florida. 330-watt base station is remote controlled.

blaze. This operation may have to be repeated time after time before the fire spread is halted. It also is possible to plow along the edge of the burning muck, dumping the turned soil onto the burning soil to smother the flames.

With radio, tractors can get well away from their supporting units. Their drivers know that a radio call will bring assistance, additional fuel, or whatever else they need. It means, too, that operators can stay on the job with confidence at night when the most effective fire-fighting can be done. Before dawn, the wind dies down and there is much less chance of stirring sparks beyond the fire-guard. Also at night, much fires glow in the darkness; in daylight, they may be invisible.

"I remember a time when I would have given plenty for a radio," recalls Assistant Chief E. C. Rogers, a 17-year veteran of the agency. "I was fighting a fire when darkness came. Instead of sleeping, I decided to make the most of the time. The tractor dropped into an alligator hole. I couldn't see where I was, I could not get the tractor out, and I could hear a 'gator below me. I sat on that tractor until daylight came and I could go for help."

While the radio-equipped tractors provide the chief weapon for the big fires, the agency also has special vehicles used more in prevention or catching the blazes in their early stages. Ten patrol tanker units, capable of carrying 400 gallons of water each and equipped with an automatic pump, can roll and pump at the same time. Particularly effective in controlling grass fires and roadside fires, these, too, have G-E two-way radio units.

Four transports are used to move tractors about from one place to another. All but one of these is radio-equipped. If there is a muck fire going, the district may order all its tractors there to concentrate on getting it extinguished.

There are three 500-gallon tank units used primarily for fighting fires along the dikes of the lakes and the drainage canals. "These are just hose and water supply," Assistant Chief Rogers explains. They, too, are G-E equipped.

Four pickup trucks used for patrol work, checking fire reports and transporting fuel, the chief's car and a jeep round out the fire-fighting fleet.

The agency has worked out an interchangeability plan for double use of its radio equipment. On tractors, for instance, the permanent installation is a metal box designed to house the radio chassis and accessories. Because tractors are not always in use, they are not constantly equipped with radios. When the need arises, a set is taken from one of the other vehicles and, since they are interchangeable, put in the weather-proof box on the tractor.

The box on the tractor is fixed permanently on the fender. Despite the jarring movements of the tractor during its work, there have been no communication difficulties.

At the base station in Belle Glade, there are three console units. One is in the office where the commission secretary, Mrs. Audrey Jones, handles the calls; another is in the shop, and the third is in the bedroom in Assistant Chief Rogers' home adjoining the headquarters building. The system operates 24 hours a day. On a routine day, it may handle 25 calls, and on a busy day perhaps 150.

"Everyone on our force has an FCC radiotelephone permit required to operate a base

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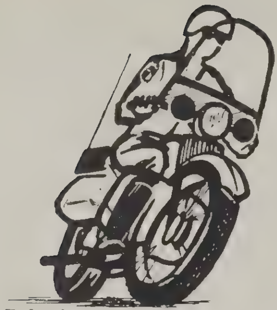

PUBLIC SAFETY COMMUNICATIONS

by Robert E. Brooking, Communications Engineer — City of Burbank, California

1963, AWAY WE GO!

Activities in the Public Safety Communications field started with a rush almost as soon as the New Year began. The morning of January 3, 1963, found representatives of the Associated Public Safety Communication Officers, Eastern States Police Radio League, Forestry Conservation Communications Association and International Municipal Signal Association in the offices of the Chief of Safety Radio Services Branch of the Federal Communications Commission.

The event was the meeting of National Chairmen of the various frequency advisory committees for the Public Safety Radio Services and they had come to Washington D.C. to carry out the plan developed at the Public Safety Communications Council meeting in Chicago on October 25 and 26, 1962.

The meeting was called to order at 9:15 a.m. by Mr. John McCue, Branch Chief. Mr. Leonard Kolsky, Assistant Branch Chief, was also present for the Commission. Mr. William Dillon attended as an observer at the request of Mr. Frederick Tripp, National Frequency Chairman for the American Association of State Highway Officials. Present for APCO was Robert E. Brooking; for ESPRL, Captain Edward Tierney; for FCCA, Mr. Fred Waters and for IMSA, Chief Thomas P. O'Brien. Legal counsel present were Mr. Joseph Kittner for APCO and Mr. William Borghesani for IMSA.

Mr. McCue opened the meeting by stating that the formula developed at the PSCC meeting in Chicago was satisfactory as a basis for establishing a procedure to be followed in the coordination of local government applications and also those involving other interspersed public safety radio split channels.

Mr. Kolsky continued the discussion, explaining that it would be necessary for the Commission to conduct a rule-making proceeding since this new procedure was not presently spelled out in the rules and could therefore only be effected by amending or changing the present rules. In response to questions regarding the length of time required by the Commission to conduct such a rule making proceeding and complete the necessary steps to implement these changes, Mr. Kolsky estimated the Commission should be in a position to release a notice of proposed rule making by January 21, 1963 with deadlines for filing comments on March 1, 1963 and reply comments on March 15, 1963. Assuming that there would be no opposition, the Commission should be in a position to finalize the rule changes by April 1, 1963 which, with thirty days notice, would make the new procedure effective May 1, 1963.

At this point, Mr. Kittner inquired concerning the petitions filed by APCO and IMSA, each requesting that it be named coordinator for the Local Government Radio Service. Mr. Kolsky replied that a letter from counsel requesting that the Commission dismiss the petition would suffice. Mr. Kittner and Mr. Borghesani advised that such letters would be in the hands of the Commission by Monday, January 7, 1963.

Mr. McCue continued the discussion, suggesting that the Commission would like to see a standardized form used for frequency advisory statements, since the statements are presently received in a variety of shapes and sizes. Mr. Brooking stated that APCO was presently attempting to develop a standardized form for this purpose and that Mr. William Gamble had been assigned this project. Further, in response to a request made at the APCO Conference in August 1962 at Clearwater, Florida, that the Chairman of the area frequency advisory committees submit samples of their frequency advisory forms, a number of replies had been received. This material would be turned over to Mr. Gamble for his study in developing a satisfactory standard form.

It was suggested that Captain Tierney and Chief O'Brien meet with Mr. Gamble, possibly in New York City, to continue this project. Chief O'Brien mentioned that the Four State Chapter of APCO would be meeting in the area on January 22 and 23, 1963. Agreement was reached to hold such a meeting.

It was further suggested that upon reaching agreement on a satisfactory form, it would be submitted to other PSCC members for their approval. Mr. Waters stated that Forestry Conservation had not been in the split-channel coordination problems to date and therefore felt that the form developed by these gentlemen would be satisfactory. Mr. Dillon indicated that this procedure appeared satisfactory to AASHO and felt the organization would agree.

To facilitate the process of developing workable plans at the area level, the representative of each organization present was provided with a complete set of the lists of the public safety frequency advisory chairmen, as published by the Commission.

The question was raised as to what steps would be taken if one of the chairmen of the area frequency advisory committees was not available due to illness, vacation or retirement pending a replacement. Chief O'Brien proposed that in such cases the three remaining chairmen would sign the letter noting the situation in regard to the fourth organization. It was agreed that this would probably result in better activity on the part of committees which would be in the best interest of all services.

Agreement was reached that the mechanical details would be worked out at the meeting on forms in January and the final result would be considered at the April meeting of PSCC.

Another question was raised concerning some method of checking to determine that the request for a frequency clearance had been completed and a station or system placed in operation. It was recognized that for budgetary and other reasons, applications for facilities are sometimes made but the project is never completed. Unless some method is created to check back on grants, frequencies may be shown as in use when they are not. Agreement was reached that this problem should also be considered at the New York meeting.

Mr. McCue stated that the position of the Commission was to protect the radio users as a whole and that the procedure developed for coordination should be as efficient as possible, providing for means of obtaining local government radio licenses without burdening the applicant with excessive paper work or causing undue delay. He added that the same methods could be applied to other interspersed assignments.

Mr. Dillon indicated that all of the proposals appeared satisfactory to him, that he would report these facts to AASHO and that he felt they would accept and join PSCC. The meeting adjourned at 11:15 a.m.

While in Washington, your editor had the pleasure of meeting with Bob Tall, C. H. Washington Bureau Chief and Jeremiah Courtney, Editor of the C.H. column, "The Legal Spectrum." Such meetings are one of the nice things that your editor has enjoyed as a result of this column.

On January 7, 1963, word was received that AASHO had applied for membership in PSCC with Mr. Frederick Tripp and Mr. Bernard Twombly named as representatives. On January 10, 1963 the Commission announced receipt of letters from APCO and IMSA requesting withdrawal of their petitions asking that they be named coordinators of local government frequencies.

On January 11, 1963, your editor had the pleasure of being present at the annual Arizona meeting of the California Public-Safety Radio Association. This meeting held in Yuma, Arizona, has been the means of resolving public safety communications problems in the Southwest. However, this year it had an even more important significance. Present at the meeting were 43 representatives from the states of Wyoming, Colorado, New Mexico, Arizona and California. Not only did the meeting result in a much closer understanding among the representatives of the five Western States, but it also proved the need for more regional meetings in the public safety field. President Platt of APCO was also present at the meeting

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Committee Lashes FCC

by **Robert E. Tall**
Chief, CH Washington Bureau

A special committee of the Federal Communications Bar Association has recommended that Congress and the President take a long, thorough look at the present regulation of the communications field by the FCC, and come up with some sweeping changes to put communications regulation on an up-to-date basis, including doing away with the Commission as it is presently constituted.

While the controversial report of the committee has no standing at the moment except as a report to the FCBA itself—in fact it has not yet been fully distributed to the membership of the association—it is expected to draw concentrated attention this year. Many of the recommended changes are not brand-new with the committee report, but many are, and the total document is probably the strongest indictment of the weaknesses of the present Communications Act, overall, yet issued by an organized committee.

New FCBA President Donald C. Beelar said last week that the views of the special committee, which had been assigned to study possible changes in the Communications Act, are expected to be considered at an early meeting of the FCBA Executive Committee.

Members of the FCBA committee which prepared the report, headed by Leonard H. Marks, are Fred W. Albertson, Philip G. Loucks, Edward P. Morgan, W. Theodore Pierson, Harry Plotkin, William Porter, Reed T. Rollo, and J. Roger Wollenberg.

The committee had been charged by FCBA "to determine whether or not it might be appropriate either (1) to draft new legislation relative to the regulation of the communications industries by a federal agency; (2) to amend the present law and the rules and regulations thereto; or (3) to recommend that nothing be done with respect to this matter."

The report, while heavily emphasizing the need for more enlightened regulation of the broadcast field, also includes concentrated passages involving the non-broadcast field—the latter contained in a section dealing with common carrier portions of the present Communications Act but covering important considerations to the private radio field as well.

In the report, described as the "first step in a process of careful and deliberate consideration," the special committee proposed that the adjudicatory and administrative functions of the FCC be assigned to a Communications Court and a Communications Administrator, respectively. It also suggested retention of a bipartisan Commission of at least five members for "policy-making and rule-making functions."

The report indicates general agreement with the December, 1960, statement to President-elect Kennedy by Dean James M. Landis, appointed to study the matter, that the FCC *"presents a somewhat extraordinary spectacle. Despite considerable technical excellence on the part of its staff, the Commission has drifted, vacillated and stalled in almost every major area. It seems incapable of policy planning, of disposing within a reasonable period of time the business before it, of fashioning procedures that are effective to deal with its problems."*

"In our judgment," the bar group declared, "partial reform of structure and creation of new offices within the Commission," recently accomplished by the agency, "will not eliminate the basic causes of the Commission's inability to function effectively."

On one point, the group noted that "Poor planning by the Commission resulted in the establishment of television in the VHF even though it was clear to all at that time these frequencies would be inadequate for a nationwide television system. By the time steps were taken to use the UHF, the problem of incompatibility had become too severe to permit either a transition from VHF to UHF or a complementary establishment of the UHF portion of the spectrum alongside the VHF. The Commission still vacillated and took no steps to remedy the situation.

"The proposal for mandatory all-channel television receiver legislation was not made until recently although it was clearly essential to any chance of success of intermixture of UHF and VHF. The 'on again-off again' policy with respect to deintermixture was a continuation of the same incapacity to create and adhere to policy. There are many other examples of inability to act in a forceful and prudent manner which need not be recited here."

In discussing possible changes, the bar committee said it "is of the view that the Commission should be retained as a policy making body, but that its administrative and enforcement functions should be transferred to an independent administrator and its adjudicatory functions should be transferred to a special administrative court."

The subcommittee of the group recommending specifically in the common carrier area noted that "It is significant that over the past 27-year period, FCC regulation of common carriers, which in the beginning was a major activity comprising two of the three divisions of the Commssion, has deterioriated to the point where it is largely a subordinate staff responsibility with relatively little attention or interest at the policy level of the Commission," since "Broadcasting predominates in political interest, appointments, organization, operations and appropriations."

Concentration on broadcasting as at present, the subcommittee said, and reorganization in the late 1930's, "make it impossible for common carrier or non-broadcast matters to receive adequate or equal attention. The long-felt need for corrective reorganization has now become indispensable and urgent as a result of the important and additional regulatory functions conferred on the Commission under the Communications Satellite Act of 1962."

The first suggestion of the common carrier subcommittee was that "The radio spectrum, being a single natural resource, its effective regulation and national policy guidance in the public interest should be under one authority which preferably should have no other authority or function.

"If this is impractical," however, the subcommittee said, "new legislation as a second choice should provide for a mandatory division of responsibility at the Commission level between radio broadcasting, whether by wire or radio, and all other communications, whether by wire or radio, domestic or international, common carrier or private. It would be essential," it said, "that the actions of each of the two divisions should be final without any right of review before the Commission en banc, except where specified by statute."

The subject of "jurisdiction" also needs revision, the subcommittee said. "This has two aspects. First, the division of regulatory authority between federal and State level, and second the extent of regulatory authority over communications under federal regulation.

"The existing statute is a patchwork which lacks coherence or direction. Radio licensing is totally under federal regulation. Common carrier services, whether by radio or other means, are in some instances exempt from federal regulation, in other instances partially under federal regulation, and some services, although local in character, are totally FCC regulated. Also, there are gaps in regulatory authority as well as instances of overlapping or conflicting jurisdiction."

"Major activities of AT&T are not under federal regulation," it went on. "The statute exempts telephone exchanges, regardless of their interstate character and intra-state services. Small miscellaneous common carriers, however, are totally under federal regulation as to licenses, tariffs, certificates, etc. . . . The existing uncertainty between state or federal regulation over certificates or franchises when radio license facilities are involved, should be clarified. Duplicate or overlapping authority between state and federal authority should be eliminated or minimized. . . . The service functions of each carrier should be covered by a franchise. All asserted grandfather rights should be re-examined. The key policy should be that of fostering competition in all categories of service, excepting only the telephone exchange-type of service which should be redefined."

The subcommittee recommended further that new "legislative policy guidance" should be established, among other things, on "promoting *competition between radio facilities and wire and cable facilities," the "extent to which carriers of any class should engage in any non-regulated activities and the nature of such activities, if any," and "the policy of regulating interconnection between carriers or between them and private systems."*

"In short," the subcommittee declared, "a statute which was written in or prior to 1920 for the regulation of the railroad industry is a poor vehicle for needed regulation of common carrier communications industry in the 1960's."

One of the "more important" revisions needed, it said, concerns section 201(a) of the Communications Act, which "permits the regulatory agency to require two carriers, after hearing, to establish 'physical connections'" which "should be revised to permit the agency to require two carriers to interconnect operationally whether or not 'physical' connection is involved. Moreover, with the growth of private communications systems, such as microwave, the section ought to be further revised to permit the agency, after hearing, to require interconnection of common carrier facilities with private communications facilites."

A quick poll of several available Washington attorneys active in the mobile communications field, who could be reached on the spur of the moment, as to their reactions to the report of the special committee of the Federal Communications Bar Association, drew the unanimous opinion that revision of the present communications regulatory concept would improve the outlook.

Jeremiah Courtney commented that adoption of the FCBA committee's recommendation that the FCC be retained as a policy making body, with the administrative and enforcement functions of the agency being transferred to an independent administrator, and its adjudicatory functions being transferred to a special administrative court, "would undoubtedly deliver the public safety, common carrier, industrial and transportation radio services from the morass in which they are presently entrapped for want of adequate frequency assignments."

Courtney declared that "While the FCBA report commends this separation of functions as an aid to the problems of the broadcast and common carrier fields particularly, the mobile radio services in my view would be the principal beneficiary. For the sad fact is that the private user and the common carrier mobile radio services not only have only ten percent of the spectrum space between 25 and 890 megacycles, but a like amount of Commission time.

"The basic problem of the mobile radio service, thus," he said, "is education, getting the Commissioners to know and appreciate the problems of the non-broadcast radio services. This educational chore, incidentally, is not eased by the strange policy of the present Commission of promoting broadcast staff, however competent, to head up their mobile services Bureau. Anything that increases the quantum of time (FCC Chairman Newton N.) Minow and his fellow Commissioners can devote to the problems of the work-horse radio services can therefore represent only an unqualified plus for these services."

"As the FCBA reports has stated," Courtney said, "the Commission, as presently constituted, does not have the time to develop national communications policy and carry out long-range planning in an effective manner. If the Commission were stripped of its huge adjudicatory case load and its pressing day-to-day application and enforcement problems, it is inconceivable that some frequency relief could not be speedily effected for the mobile radio services. The anomaly of frequency shortages in a spectrum land of plenty (providently managed), would disappear."

Norman E. Jorgensen agreed that there is "merit" in the committee's proposals, despite some reservations he may have about the proposed "one-man Communications Administrator" or in the specific organization of the Communications Court. The separation of the FCC's present functions, however, he commented, "looks good on paper," since it would be a departure from the present case where the FCC is "judge and jury" and in some cases even "prosecutor."

Jorgensen noted that the FCC is using most of its effort in "just policing" and agreed that taking away the agency's "badge and gun" would certainly open the opportunity for more thoughtful attention to policy-making considerations.

Jerome H. Heckman commented that the FCBA special committee "is certainly deserving of commendation. As some of the committee members noted, their efforts represent only a start, but the basic proposals could bring about substantial benefits for all users of the spectrum. The objective treatment of the subject matter in depth is what makes the report an invaluable work which may well prove the beginning of a turning point in the regulation of the radio spectrum."

"The extent to which the non-broadcast services will benefit from the work," Heckman said, "will depend on the amount of effort licensees, and their representatives invest in any program designed to implement the recommendations.

"While the report's authors are obviously most familiar with the broadcast and common carrier services, their recommendations could ultimately benefit the safety and special services even more. This is an added tribute to the committee because, here again, it avoided the common failing of overlooking the non-broadcast point of view."

"At the same time," Heckman noted, "the broad approach to reform suggested presents a real challenge and opportunity for those interested in the private radio services. There is a great deal that can be done to improve all phases of radio regulation—the opportunity now at hand should not go unnoticed or unused.

LOGBOOK

Submit items for this column to CH Washington Bureau Chief,
ROBERT E. TALL at 1327 F STREET N.W., WASHINGTON 5, D.C.

A CALENDER OF IMPORTANT MEETINGS AND
EVENTS OF INTEREST TO MOBILE COMMUNICATIONS.

March 4—Comment deadline on FCC proposals for establishment of local government radio service frequency coordination procedure.

March 4—Comment deadline on FCC proposals to substantially revise citizens radio service regulations. Reply comment date is March 19. (Docket 14843).

March 11—FCC hearing on application of AnsweRite Professional Telephone Service for new radio common carrier service at Orlando, Fla.

March 22—Annual meeting of Operational Fixed Microwave Council. Gramercy Inn. Washington, D.C.

April 1—FCC hearing on applications of Oregon Mobile Radio, Empire Communications of Medford, and Medford Business Exchange, for new radio common carrier service in Medford, Ore.

April 1—Persons operating in the special industrial radio service on frequencies previously available for assignment in the service, but which are no longer available for assignment in the service, must switch frequencies.

May 14-17—Annual meeting of Industrial Communications Association. Eden Roc Hotel. Miami Beach, Fla.

June 4—Annual meeting of National Petroleum Radio Frequency Coordinating Association. Statler Hotel. Washington, D.C.

June 5-6—Semi-annual meeting of American Petroleum Institute Central Committee on Communications Facilities. Statler Hotel. Washington, D.C.

June 15—Persons previously eligible in the special industrial radio service, who received licenses prior to June 15, 1958, but no longer eligible, must transfer to other radio services in which they are eligible.

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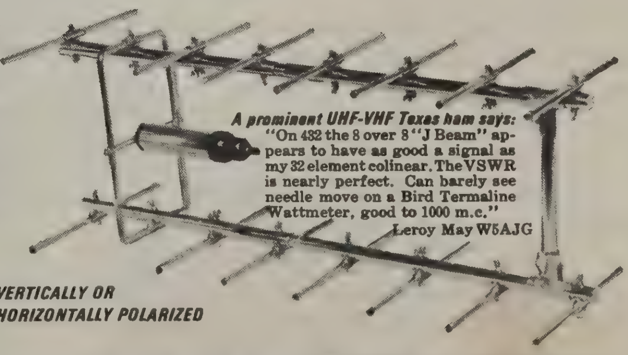

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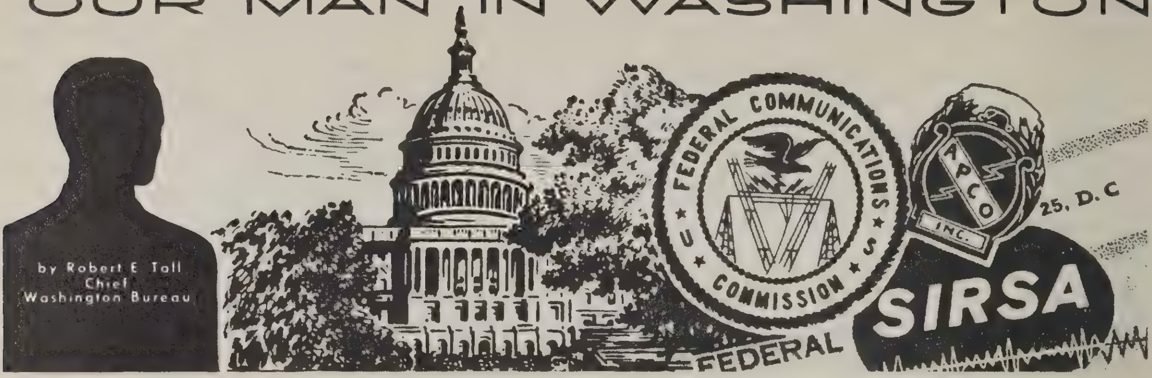

SPACE INQUIRY NO THREAT TO FIRE SERVICE, FCC SAYS

The draft proposals for international space-program frequencies, which includes use of the spot frequency 154.17 Mc for transmitting command signals to satellites, is not expected to have more than "minimal" impact on Fire Radio Service licensees now using that frequency, the FCC has said.

The Commission made the statement in response to a number of inquiries and comments—including several from Congressmen.

FCC Chairman Newton Minow explained that two command frequencies are necessary for control of satellites, and added that "regardless of the frequencies designated, some service or services will be affected." However, he continued, because of the small number of command stations to be established and the intermittent use to be made of them, the Commission anticipates only "isolated" needs for frequency changes to avoid interference.

100,000TH INDUSTRIAL RADIO LICENSE GRANTED

The FCC has announced granting of its 100,00th authorization for industrial radio services. Issued in the Special Industrial Radio service, the license went to Altoona Gas Service, Inc., Tampa, Fla., and authorizes a base station and 15 mobile units.

In announcing the grant, the Commission noted that "The current total reflects the particular growth of the industrial radio services in the past 10 years, from slightly in excess of 17,000 in 1953 to almost six times that figure today. These authorizations are increasing at the rate of more than 1000 a month. The total transmitters used by the industrial services now approximates 900,000."

RAIL MICROWAVE RULE CHANGE DRAWS SPLIT COMMENTS

The petition by the Association of American Railroads to permit transmission of public telegrams over rail microwave links has drawn split comments.

Western Union Telegraph Co. has endorsed the request. The telegraph firm told the FCC "it would appear logical as a matter of economics and operating convenience to be able to use such microwave facilities for the handling of Western Union telegraph messages."

However, American Telegraph & Telephone Co. has opposed the request. AT&T said in its comment it "does not object to the use by radio licensees of microwave circuits in the continuation of existing arrangements" but felt that the situation should be met by individual rule waivers rather than by a change of general rules.

COMMISSION CHANGES FILING RULES

Parties making filings with the FCC are now required to submit more copies than before, after a change in the procedural rules of the commission.

In all filings *except* comments on proposed rulemaking and those addressed to the Review Board, an original and 19 copies are required. An original and 14 copies are still sufficient for rulemaking comments and Review Board filings.

COMMON CARRIER BUREAU BRANCH CHIEFS ASSIGNED

Chiefs of the branches set up in the new FCC Common Carrier Bureau have been assigned and are on the job, Bureau Chief John J. Nordberg reports.

Frank Palik is chief of the domestic radio division; Byron Harrison is assistant chief of

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that division and also, until selection of a permanent appointee, heads the mobile radio branch.

Herbert Beury is chief of the new microwave branch; Miss Betty Ferro, with the Commission as head of the License Branch for more than a decade, retains that post.

Other staff members in the Microwave branch are Adrien Auger, Joseph Chacklin, Clayton Hanson, and James Meredith. Other staff members of the Mobile Radio branch are Edward Lynch, Howard White, John Healy, Kenneth Gillette, Wendell Harris, Daniel Gerety, and Jack Sasser.

PRESIDENT ASKS $16.5 MILLION FOR FCC IN NEW BUDGET

A $2 billion boost in FCC spending was included in President Kennedy's budget message to Congress.

The President asked $16,500,000 for the Commission's funding this year; breaking this down shows substantial increases for broadcast, common carrier, and field engineering and monitoring. The safety and special services would get smaller increases.

G-E SUPPORTS APCO PETITION

In comments to the FCC, General Electric's Communication Products Department has commended APCO for its "timely and cogent" petition for a formal inquiry into present and future requirements of public safety agencies for radio spectrum space—and suggested that the Commission "broaden the requested inquiry to include the development of an overall philosophy of spectrum allocations and management."

The G-E department said it "applauds and supports" the APCO request since it is "essential that the Commission determine and evaluate the compelling needs of the public safety radio service for radio frequencies."

COX NOMINATED AS FCC COMMISSIONER

Kenneth A. Cox, appointed by President Kennedy to fill the unexpired term of FCC Commissioner T. A. M. Craven from January 31 to June 30, has been nominated for a full 7-year term on the Commission.

Senate approval of Commissioner Cox is deemed assured, since he previously served as special counsel to the Senate Commerce Committee.

MINNESOTA ASKS WAIVER OF NBFM POLICE RULE

James C. Marshall, commissioner of the Minnesota department of highways, has filed a request with the FCC asking a two-year extention of the Commission's November 1, 1963, narrowband deadline for Minnesota's state police communications system.

Marshall said FCC waiver of the full narrowband requirement for his state's police system would not lead to interference for other users.

TAXICAB GROUP ASKS NBFM EXTENSION ALSO

The National Association of Taxicab Owners, Inc., has petitioned the FCC for a generally applicable waiver in the taxicab radio service to permit such licensees to continue to use "broadband" mobile radio facilities until October 31, 1968.

The waiver would be conditional on non-interference to narrowband systems.

In asking the five-year deadline extension, NATO suggested that the waivers also be subject to revokation without hearing in the event of harmful interference.

The taxi group declared its proposal "would make it possible for those taxicab licensees who are now using broadband equipment without any adverse effect on either their service or the services of others to continue to do so, rather than junking otherwise good equipment as the present rules would require." If the waivers are granted, "the taxicab operator can phase out his use of broadband equipment and replace it" as necessary from an operational standpoint.

NATO said its proposal is an "adaptation" of the policy established by the FCC in April, 1959, which established the October 31, 1963, deadline. The same reasons which prompted the Commission to adopt its 1959 policy, NATO said, are similarly applicable to the present petition.

BARR APPOINTED TO SAFETY-SPECIAL POST

The FCC has made it official that James E. Barr, former assistant chief of its Broadcast bureau, is Chief of the Safety and Special Radio Services bureau.

Barr replaces Curtis B. Plummer, who was promoted to the post of Executive Director of the Commission.

LOCAL GOVERNMENT RADIO COORDINATION CLOSER

Routine frequency coordination procedures for the local government radio service have moved a step closer to actuality with FCC release of a notice of proposed rulemaking, in line with steps recently worked out between the Commission and the Public Safety Communications Council (see Bob Brooking's columns in recent issues of CH for details).

The proposed rules would remove many of the present procedures for frequency selection in this service, and would have the effect of allowing applicants to choose the desired mode of frequency coordination. This, in turn, allows the "coordinating committee approach" worked out by PSCC to be applied, and the Commission expects it will probably be used in most cases.

Comments on the proposed rules are due by March 4, with reply comment deadline set at March 14. An informal target date of May 1 has been mentioned for actual adoption of the new procedure in the event of no opposition.

CABINET COMMUNICATIONS POST EFFORT RENEWED

Rep. J. Arthur Younger, R-Calif., has renewed his proposal for establishment of a Cabinet "Department of Transportation and Communications" which failed to pass in the 87th Congress.

Rep. Younger introduced his bill, HR 967, in the early days of the 88th Congress. Observers feel it has almost no chance of obtaining even committee consideration.

Rep. Younger has also introduced another bill, HR 834, to provide for the assessment and collection of fees to cover the cost of operation of certain regulatory agencies, including the FCC. ■

Public Safety . . . from page 11

and gave a report of his first five months in office.

Well, 1963 is off with a rush for those of us in the public safety communications field. It looks like an interesting and exciting year. How productive it will be in resolving our problems remains to be seen. ■

Antennas . . . from p. 5

In-between spacings can give you all sorts of other odd patterns; the best (although not the simplest) way to do it is to vary the spacing until you get the result you want, using the two patterns shown here as guides.

Of course, if your antenna supplier's engineer happens to be around, you can avoid all this simply by calling on him. But often the antenna engineer is in another part of his territory when you need him, and the job won't wait for him to get back. Keeping these hints in mind will help you solve the problems when you meet them, for yourself.

And a p.s. Antenna inventory can be reduced with this trick too, since it makes use of nothing but standard omni antennas!

Glow . . . from page 9

station," Assistant Chief Rogers explains. "That's in addition to being a fireman and a mechanic and quite a few other things."

During the fiscal year of 1961-62 — one of the busiest — the district worked at 922 fires and put in 4770.5 hours of actual fire fighting. Involved were 245,665 acres of private land and 458,458 acres of government land (state, county or city).

In terms of total hours spent directly at the scenes of fires, few, if any, departments in the United States can match the Everglades Fire Control District's record. Radio makes the job easier by enabling headquarters to coordinate the movement of the men and their equipment more efficiently.

Who's Responsible?

(Continued from page 6)

All of the users have now reached the same point; we are in the spectrum squeeze. The solution to this squeeze has been apparent for some years, but it is going to take money to carry out and win this battle. Lest there be any doubt as to which Service must relinquish space to resolve this problem, a letter from Chairman Minow of the FCC to Senator Magnuson is attached herewith. Its contents are self-explanatory.

BOB BROOKING

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON 25, D.C.

JULY 3, 1961

IN REPLY REFER TO:
3400

Honorable Warren G. Magnuson
Chairman, Committee on Commerce
United States Senate
Washington 25, D.C.

Dear Senator Magnuson:

I have your letter of June 8, 1961, transmitting a copy of a letter addressed to you by Mr. Robert E. Brooking, Chairman of the Public Safety Planning Committee, Associated Police Communications Officers, Inc., 1615 North Lima, Burbank, California. In that letter Mr. Brooking refers in general terms to the problems involved in allocating the radio spectrum to the various services and expresses the view that safety services should be accorded priority over such services as television.

The Commission is fully aware of the problems raised in Mr. Brooking's letter and is giving extensive consideration to the needs of all the various services for spectrum space in the frequency range between 25 mc and 890 mc in a public proceeding captioned Docket No. 11997. As Mr. Brooking indicates in his letter to you, he testified in that proceeding. The record is now closed, however ultimate disposition of the problems raised is unavoidably keyed to the solution of the television problem. This is necessarily so, since television occupies the largest single block of space in this order of the spectrum. The Commission is moving toward a solution of these difficult problems, and you may be assured that the matters raised by Mr. Brooking will receive careful consideration.

Your letter of transmittal, together with the copy of Mr. Brooking's letter to you, has been associated with the file in Docket No. 11997.

Sincerely yours,

Newton N. Minow
Chairman

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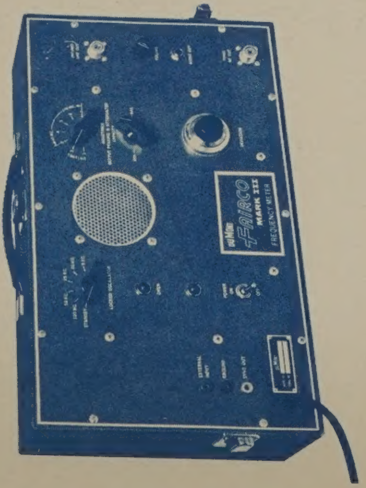

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A standout as a secondary frequency standard, this portable, low cost unit exceeds FCC requirements for accuracy. With one small unit you can now measure every frequency in the allocated FM spectrum—at base operations or in the field. A single cable connection allows exact adjustment of both transmitter and receiver in seconds.

Here is a new and essential tool for all two-way radio service firms.

Features

- Low price.
- Accuracy exceeding FCC requirements.
- Satisfies all allocated frequencies in FM band.
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True versatility is now achieved by permitting up to 48 rf/if channels. (With optional case). Rugged and lightweight, the basic meter weighs but 8 pounds and is ideally suited for such functions as: carrier frequency error indication, relative transmitter field strength, modulation deviation measurement, receiver rf alignment generator, aural monitoring of modulated signal, and a host of others.

FEATURES

- 24 rf/if channels and an audio signal in one, pint-sized package. (48 channels optional)
- 25 to 470 Mc spectrum plus if channels in the 100 kc to 100 Mc range.
- Defies obsolescence—permits addition of new channels.
- Signal generator output for receiver servicing.
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NEW... A Superior "Years Ahead Design"

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General FM-60

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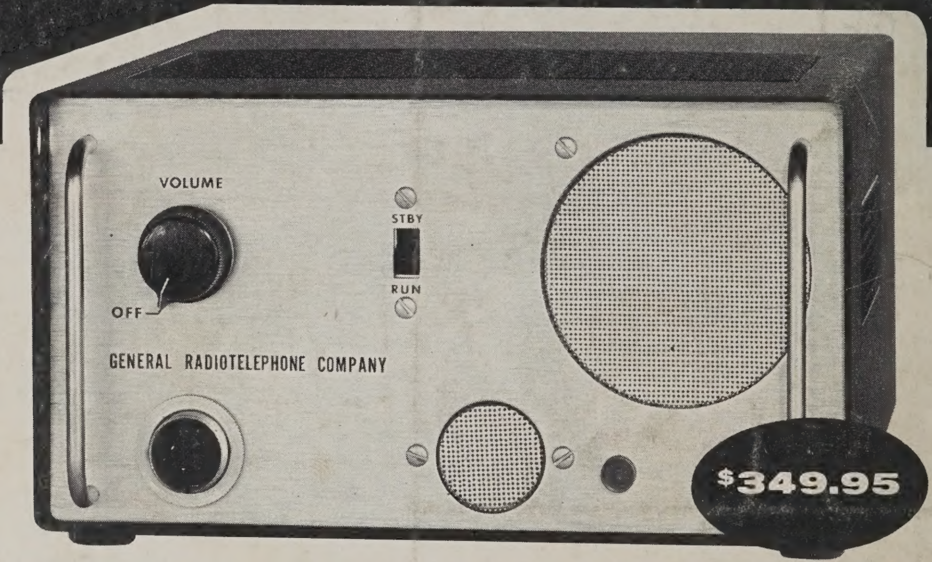


The FM-60 Business Band Transceiver is the most competitive set available. The FM-60 now meets the complex demands placed upon modern business. This compact, rugged unit surpasses in quality, price and inclusive features any FM transceiver in operation today.

THE FM-60 is 60% efficient. This power ratio is unequaled in today's market.

THE FM-60, at $349.95, is up to 40% lower than competitive makes.

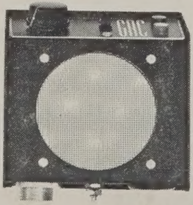
THE FM-60 has inclusive features that make for trouble-free, flexible two-way radio... hermetically sealed relays, nuvistor front end, fully automatic squelch, narrow band reception. Constructed for 6-12 or 115 volt input by merely changing the power cord. Handles are built-in to provide easy transport.

The FM-60 is a complete transmitting and receiving unit in itself. It may also be used with the RC-612 plug-in Remote Head.

MODEL RC-612 REMOTE CONTROL. The remote control, Model RC-612, is capable of controlling all functions of the FM-60, and contains a speaker; volume control with on-off switch; squelch control; battery saver switch, transmit and receive indicator lights; receptacle for microphone; 12 conductor remote cable with plug attached; mounting bracket.

Standard cable length is 17 feet, any length available on special order. **$49.95 NET**

HEIGHT: 1 13/16"
WIDTH: 4 1/8"
DEPTH: 4 1/4"



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